CW ASSOCIATES, INC. dba
GEOLABS-HAWAII
Geology Soils and Foundation Engineering
2006 Kalihi Street • Honolulu, Hawaii 96819 • (808) 841-5064

September 3, 1982
W.O. 844-30

Community Planning, Inc.
700 Bishop Street
Suite 608
Honolulu, Hawaii 96813

Attention: Mr. Gerald Lum

Subject: Compaction Report
Access Road for Halawa Development
Halawa, Oahu, Hawaii

Gentlemen:

Most of the mass grading work for the above referenced project was performed from about March 3, 1981 to March 21, 1981. The earthwork and grading operations during that period were inspected by our office. This compaction report summarizes our inspection and compaction tests performed at the site.

As of this date, the above referenced roadway has been constructed to final grade and compacted adequately. The compaction test results for the in-place fills are enclosed in the attached Compaction Test Summary.

In general, the grading operations consisted of filling the entire roadway area up to 20 feet. Imported material used to surcharge the adjacent stadium mall project was utilized for the roadway fill.

Prior to fill placement, the existing vegetation was removed and the existing ground scarified and recompacted. The fill was then placed in horizontal lifts and compacted to a minimum of 90% of its maximum density.

During the fill placement operations, periodic field density tests were done in accordance with the American Society for Testing and Materials (ASTM) Test Designation D-1556 (Sand Cone Method).

During the grading period, the import soil was tested prior to being used in the fill. The maximum soil density and optimum moisture content was established in our laboratory in accordance with ASTM D-1557 test designation, and the test results are as follows:

Type	Soil Description	Maximum Density (pcf)	Optimum Moisture
Import	Brown Clayey Silt w/ Gravel	94.0	27.0

Surcharge

Soft subsoils were encountered below the roadway area, therefore, after the new fill was placed, a 10-foot high surcharge fill was added over this area in order to accelerate the ground settlements prior to construction of improvements. The surcharge fill was left in place for about 7 months.

The settlement gauge readings taken during that period indicated that most of the primary settlements had occurred. Therefore, the surcharge fill was removed in November, 1981.

Should you have any questions concerning this report, please do not hesitate to call us.

It has been a pleasure working with you on this project and we look forward to working with you again in the future.

Respectfully submitted,

C.W. ASSOCIATES, INC.
dba GEOLABS-HAWAII

By Clayton S. Mimura
Clayton S. Mimura, P.E.

CSM:jcc

Enclosure: Summary of Density Tests

(3 Copies to Addressee)

SUMMARY OF DENSITY TESTS CONTROL OF COMPACTED FILL				W.O. NO. 844-30 PAGE 1 OF 1			OWNER 745 Fort St. Corporation JOB Access Rd. for Halawa Dev.		
TEST NO.	DATE	TEST LOCATION	ELEV. FT.	% COMP. REQ'D	MAX. DRY DENSITY P.C.F.	FILL MOISTURE %	TEST DRY DENSITY P.C.F.	% MAX. DRY DENSITY	REMARKS
1	3/3/81	Roadway "B" Sta. 2+40	29.0	90.0	94.0	25.1	86.7	92.2	Pass
2	"	Roadway "B" Sta. 1+50	31.5	"	"	26.2	85.7	91.2	"
3	3/4/81	Roadway "B" Sta. 0+80	34.5	"	"	23.1	75.7	80.5	Fail; see #5
4	3/5/81	Building Pad	31.0	"	"	24.3	88.1	93.7	Pass
5	"	Roadway "B" Sta. 0+80	34.5	"	"	26.4	85.4	90.9	Retest #5 Pass
6	"	Roadway "B" Sta. 1+30	33.5	"	"	29.3	87.0	92.6	Pass
7	3/6/81	Roadway "B" Sta. 0+00	34.0	"	"	28.3	89.0	94.7	"
8	3/10/81	Roadway "B" Sta. 0+00	38.0	"	"	28.5	91.1	97.0	"
9	"	Roadway "B" Sta. 2+00	34.5	"	"	28.8	89.5	95.2	"
10	"	Roadway "B" Sta. 1+00	38.0	"	"	27.5	84.6	90.0	"
11	3/21/81	Roadway "A" Sta. 2+00	45±	"	"	22.0	90.6	96.3	"
12									
13									
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SR-72

201-22-0598

Date: October 12, 1982

TO: 745 Fort Street Corporation
700 Bishop Street, 20th Floor
Honolulu, Hawaii 96813

Gentlemen:

Re: HALAWA DEVELOPMENT ACCESS ROADS A AND B
TMK: 9-9-02: POR. 10

We are sending you herewith X Under separate cover ____

No. of Copies	Description
1	Approved Grading Permit No. 194

For:

X Your information and use
____ Review and comment
____ As requested
____ Approval
____ Signature

Remarks:

The date of our approval, October 7, 1982, is the closing date of the permit. The bond filed with the City for the grading work shall remain in effect for a period of one year after the closing date; therefore, it will be returned to you on October 7, 1983.

Very truly yours,

for MICHAEL J. CHUN
Director and Chief Engineer

MY:gc
Attach.
cc: Community Planning, Inc.
Industrial Indemnity Company
bcc: Service Engineer w/original

PERMIT CLOSED

PERMIT NO. 194

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

182 x 0416
Rec. 4/12/82 grf

To the Director and Chief Engineer
Department of Public Works
City and County of Honolulu

APPLICATION AND PERMIT FOR
GRADING

DEPT 24 ENG 12 $178.50
03/30/82 T#0011 TRAN 027201
RCT# 034642 C#1 $178.50

Application is hereby made to do grading work in conformity with Chapter 23, R. O. 1978, As Amended, as follows:

TAX MAP KEY					ENG. SOILS REPORT	EST. QUANTITY	PERMIT FEE	FEE RECEIVED
ZONE	SEC.	PLAT	PAR.	LOT	DATE FILED:	EXCAV. CU.YD. 40	$ -	$ 178.50
9	9	02	POR. 10	-		FILL CU.YD. 17,180	$ 178.50	BY: DATE: 3/30/82

Located at HALAWA DEVELOPMENT ACCESS ROADS A & B, HALAWA

Lot Area _____ Sq. Ft. 2.3 Royal Acres

Description of Soil
Fill Material Fill Soil
Existing Ground mudrock to hard brown silts

☑ Temporary Erosion Control
Procedures on File
☑ Bond on file Ind. Indemn. Co.
☑ Dept. of Public Works to Inspect
☐ Bldg. Dept. to Inspect

Estimated Starting Date x March 30, 1982 Estimated Completion Date x July 1, 1982

Remarks/Purpose of Work: _____

DEVELOPER: ~~745 Fort St. Corp~~ ~~700 Bishop St 20th Fl 9458398~~
Owner THE QUEEN EMMA FOUNDAT'N. Address 111 S King Phone 525 8511
Engineer COMMUNITY PLANNING, INC., Address 700 Bishop St., Ste. #608 Phone 531-4252
Contractor ROYAL CONTRACTING Co, LTD, Address 677 AHUA ST. z. 96819 Phone 839-9006
Date of Application x 3/29/ 1982 Permittee x Clem Hoy Lee V.P.

Application Reviewed By _____ Date _____ 19____
SERVICE ENGINEER

To the Applicant:

Permission is hereby given to do the above work according to the conditions hereon and according to the approved plans and specifications pertaining thereto, subject to compliance with Chapter 23, R. O. 1978, As Amended.

Remarks: _____

Date 3/30 1982

Issued By:

FOR DIRECTOR AND CHIEF ENGINEER, DEPT. OF PUBLIC WORKS

Contractor shall notify this office **two working** days before commencing any work and arrange for necessary inspectional services.

THIS PERMIT WILL EXPIRE UNLESS WORK IS STARTED WITHIN 90 DAYS FROM DATE OF ISSUE; OR IF WORK IS SUSPENDED OR ABANDONED FOR 60 DAYS OR MORE AFTER WORK IS BEGUN; OR ONE YEAR FROM DATE OF ISSUE

I hereby certify that all work as requested above has been completed in conformity with Chapter 23, R. O. 1978, As Amended and in accordance with the approved plans and specifications.

Date 10/6 1982 Permittee Clem Hoy Lee

Date October 7, 1982 Approved By: [signature]

Final Soils Report Date Filed Oct. 8 1982

COMMUNITY PLANNING, INC.
700 BISHOP STREET, SUITE 608 HONOLULU, HAWAII 96813 · TELEPHONE 531-4252, 521-7491

PROPOSED EROSION CONTROL PLAN

NAME OF DEVELOPMENT:	Access Road for Halawa Development
OWNER:	The Queen's Medical Foundation
ENGINEER:	Community Planning, Inc.
LOCATION:	Halawa, Ewa, Oahu, Hawaii
TAX MAP KEY:	9-9-02: Por. 10
AREA:	2.5 acres
PREPARED BY:	Gerald Lum
DATE:	March 23, 1981 (revised) June 5, 1981

SOIL AND GENERAL SITE CONDITION:

In general, the site is on a gentle plain sloping in a westerly direction at approximately 2%. The soil is described as fill consisting of compacted mudrock gravel and clayey silt covered with a moderate growth of weeds and brush.

The proposed improvement is to fill and surcharge a 2.5-acre area for a 56' and 58' access roadway off Kahuapaani Street and to construct street and utility improvements upon the completion of the surcharge period.

EROSION HAZARD:

Mild due to the low rainfall index (215) and relatively flat plain.

CONSTRUCTION SCHEDULE:

1. Install drain system and construct temporary interceptor ditches and temporary silting basin (July 6-31, 1981)
2. Clear and grub (July 31 - August 3, 1981)
3. Grade 56' and 58' rights-of-way (August 3-24, 1981)
4. Surcharge fill (August 24 - September 7, 1981)
5. Grass all exposed areas (September 7-11, 1981)

MAR 30 1982

GRADING PERMIT NO. 194

ST. SIGNS BY ROYAL CONST MERK'S JOB

6. Irrigation and maintenance period for grassing (September 11 - November 9, 1981)

7. Surcharge monitoring period (September 11, 1981 - March 8, 1982)

8. Remove surcharge and grass slopes (March 8-22, 1982)

9. Construct street improvements and install drainage, sewer, water and underground electric, telephone and street light systems (March 22 - May 31, 1982)

10. Clean up and inspection (May 31 - June 7, 1982)

TEMPORARY EROSION CONTROL MEASURES:

1. Grass all exposed areas immediately after completion of grading and stockpiling

2. Construction of 50' x 110' temporary silting basin together with temporary earth ditch and swale

PERMANENT EROSION CONTROL MEASURES:

1. Landscaping and ground cover of the slopes and paving of the roadway

2. Permanent open and underground drainage system

SEVERITY RATING CALCULATIONS:

1. Project Conditions

The 2.5-acre site located in Halawa consists of soil classified as Hanalei silty clay, 0 to 2% slopes (HnB).

Grading, stockpiling and construction of improvements will be during the winter and summer months over an 11-month period; the entire graded and stockpiled area will be grassed immediately after grading and/or stockpiling.

2. Values of Equation Factors

F = 4 (Halawa Stream 600 feet away, existing 84-inch RCP and box culvert)

T = 11 months

D = 1, from Table 2, Exhibits 1 and 2 (Pearl Harbor - East Loch, Class B water)

E = RK(LS)(CP)

R = 215 (from Exhibit 3), to commence July 6, 1981, and completed by June 7, 1982

R for period of disturbance less than one full year (Exhibit 4)

% R to June 7 = 155.0
% R to July 6 = 56.5

98.5

Value of R = 215 x 98.5% = 211.8

K = 0.17 (Hnb), from Table, Exhibit 5

(LS) factor for length and steepness of slope

Graded area: S = 2% for L @ 600 feet
S = 50% for L @ 40 feet

Interpolating from Exhibit 6, we obtain

LS = 0.34 for S = 2% @ 600 feet
LS = 11.0 for S = 50% @ 40 feet

Therefore, weighted LS is

$$LS = \frac{40}{640}(11.0) + \frac{600}{640}(0.34) = 1.01$$

(CP) = 0.36, Condition 2, Exhibit 8

Grading and stockpiling in winter and summer months with the area seeded, C = 0.57

Erosion control measures:

Incremental grading, P = 0.7

Interceptor ditches and silting basin, P = 0.9

CP = 0.57 x 0.7 x 0.9 = 0.36

3. Calculations

E = RK(LS)(CP)

= 211.8 x 0.17 x 1.01 x 0.36 = 13.04

H = (2 FT + 3D) AE

= ([2 x 4 x 0.92] + [3 x 1]) x 2.5 x 13.04 = 336.9

336.9 < 50,000 (maximum allowable severity rating)

Compare maximum allowable construction area times erosion rate:

A x E = 2.5 x 13.04 = 32.6

32.6 < 6,277 (maximum allowable from Exhibit 9)

APPROVED:

_____	_____ 6/10/87
Director & Chief Engr., DPW	Chief, Div. of Eng., DPW
Date: _____	Date: _____

C O M M U N I T Y P L A N N I N G, I N C.
700 BISHOP STREET, SUITE 608 · HONOLULU, HAWAII 96813 · TELEPHONE 531-4252, 521-7491

September 30, 1982

Dr. Michael J. Chun
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Dr. Chun:

Subject: Grading Certification
Access Road for Halawa Development
Halawa, Ewa, Oahu, Hawaii
Tax Map Key: 9-9-02: Portion 10

Grading for the subject project is completed and is in substantial conformance with the grading plans approved on June 15, 1981, as amended by "as-built" grading plan.

Very truly yours,

COMMUNITY PLANNING, INC.

Bernard P. Kea

Bernard P. Kea

BPK:GL:cl

cc: 745 Fort Street Corp.
(Chew Hoy Lee)